



**KING SAUD UNIVERSITY  
COLLAGE OF NURSING  
NURSING ADMINISTRATION & EDUCATION DEPT.**

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# **NURSING RESEARCH**

**(NURS 412)**

**MODULE 1**

**Developed and revised**

**By**

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**1437 – 1438**

# 1. Introduction to nursing research

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## Research and Contemporary Nursing

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The development and utilization of nursing knowledge is essential for continued improvement in patient care. Conducting researches in nursing, as all other sciences, is important to establish a knowledge-base for practice, improvement, and development.

### Lecture Outcomes:

1. Describe the defining characteristics of research.
2. Signify the various nurse's roles in scientific research.
3. Compare the value of information generated by research to information found from other sources.
4. Describe research competencies needed by baccalaureate-prepared nurses in order to have an evidence-based practice.
5. Differentiate among the utilization of each of the scientific research types.

### Definitions:

- **Research:** it is a systematic, formal, rigorous, and precise process used to gain solutions to problems or discover and interpret new facts and relationships.
- **Nursing research:** is systemic inquiry designed to develop knowledge about issues of importance to nurses, including nursing practice, nursing education, and nursing administration.
- **Research-based practice:** using research findings to inform the decisions, actions, and interaction of nurses with clients.

## Importance of research in nursing:

1. Emphasizing on the development and utilization of nursing knowledge, which is essential for continued improvement in patient care.
2. Nurses' need to document the effectiveness of their practices not only to the profession, but also to the clients, administrators, and other professionals.
  - (Thus research findings help them to eliminate nursing actions that do not achieve desired outcomes or to identify the practices that alter health care outcomes and contain costs).
3. Nurses' need for understanding the varied dimensions of their profession, (theoretical, ethical, practical dimensions, etc).
4. Research enables nurses to describe the following:
  - a. The characteristics of a particular nursing situation about which little is known.
  - b. Explain phenomena that must be considered in planning nursing care.
  - c. Predict the probable outcomes of certain nursing decisions.
  - d. Control the occurrence of undesired outcomes.
  - e. Initiate activities to promote desired client behavior.

## Roles of nurses in nursing research:

It is every nurse's responsibility to engage in one or more roles along the research participation, from these roles are the following:

1. **Indirect participation:** This is a minimum nurse involvement in a research responsibility. It is done when a nurse read a research report to keep up-to-date on relevant findings that may affect their practice. This level is called "research utilization".
  - **Research Utilization:** "Is the use of the research findings in a practice setting".

2. **Direct participation:** in which nurses are nursing research producers. They are actively participating in designing and implementing research studies.
  
3. **Between these two dimensions** of research participation, there are a variety of roles for nurses to play, from these roles:
  - a. Attending research presentations at professional conferences.
  - b. Evaluating completed research for its possible use in practice.
  - c. Discussing the implications and relevance of research findings with clients.
  - d. Giving clients information and advice about participation in studies.
  - e. Assisting in the collection of research information (e.g., distributing questionnaires to clients).
  - f. Reviewing a proposed research plan for its applicability in clinical settings.
  - g. Assisting with the development of an idea for a clinical research project.

### **Sources of knowledge:**

Nursing research is designed to yield important knowledge about phenomena of interest to nurses and their clients. Knowledge of relevance to nurses has many roots.

Thinking about the facts you have learned relating to the practice of nursing, do you know the source of this information? Some facts are derived from research; some are not. Clinical knowledge used in nursing practice is derived from many sources; from these sources are the following:

1. **Tradition:** Within nursing profession, certain beliefs are accepted as truths (and certain practices are accepted as effective) simply based on customs,
  - *(for example, one of the tasks traditionally performed by nurses is the change-of-shift report for each and every patient, whether or not the patient's condition has changed, without proving its productivity and/or effectiveness under certain circumstances). But traditions may undermine effective problem solving.*

## 2. *Authorities:*

- An authority is a person with specialized expertise and recognition for that expertise.
- Dependency on nursing authorities (such as nursing faculty) is inevitable.
- Authorities as a source of information have limitations as:
  - May depend on their personal experiences.
  - Their knowledge often goes unchallenged.

## 3. *Personal experience:*

- We all solve problems based on observations and experiences.
- Personal experiences are based on recognition, generalization, and predictions based on observations.
- Personal experience has limitations as:
  - Each person's experience may be too restricted to be useful.
  - Personal experiences are often biased.

## 4. *Trial and error:*

- The trial and error approach to nursing knowledge usually involves multiple attempts to solve a particular problem until a satisfactory solution is found.

*For example, a pediatric nurse who is caring for immobilized child in the hospital may try a number of different play techniques based on the child's developmental stage until finding one that is effective.*

- *Limitation of this method:*

This method of knowing is inefficient because:

- A number of attempts are usually required before a solution is found.

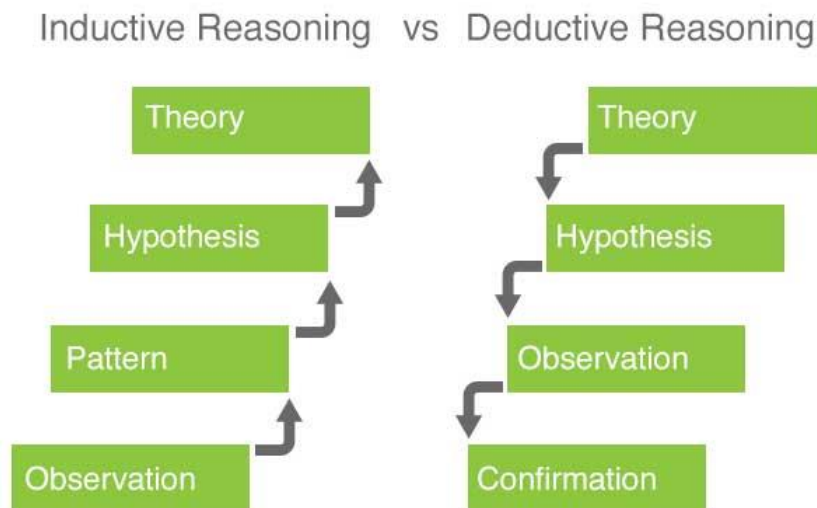
- It could be hazardous to client safety.
- The solution found may be specific to a particular client and setting and not generalizable to a broad population.

5. **Intuition**( *حدس - بديهية*):

- Intuitive knowing is "the ability to understand a situation or phenomena as a whole without reasoning or previous study".
- It causes a nurse to respond appropriately in unfamiliar situations (as a personal experience).
- However, controversy exists regarding its validity because it does not conform to the recent requirements for evidence-based practice in health care (that is, intuitive knowing is not predictable, measurable, and generalizable).

6. **Logical reasoning:**

- **Reasoning** "is the mental processing of ideas to solve problems".
- Two intellectual mechanisms are used in reasoning: *deductive* reasoning and *inductive* reasoning.



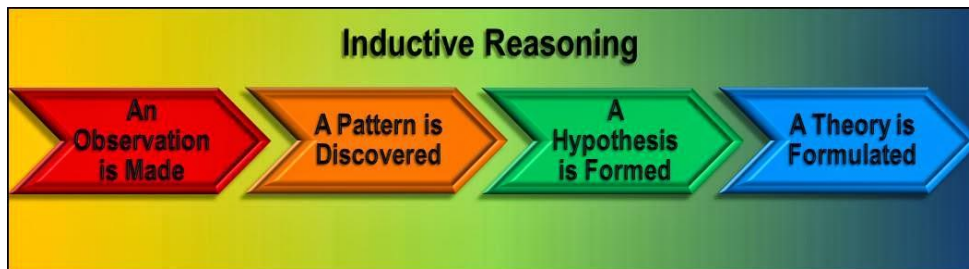
- Deductive reasoning: "is the process of developing specific predictions from general principles".
  - In this method, a nurse reaches a conclusion by moving from the general to the specific.
  - It is the approach used to test predictions and validate existing relationships.

*For example,*

*An obstetrics nurse has noticed over many years of practice that women who have no support person with them while giving birth require more supportive nursing care than those accompanied by a mother, a partner, or friend. When this nurse then admits a young woman in labor who arrives at the hospital alone, the nurse anticipates that additional care measures will be appropriate for this client.*

Inductive reasoning: "is the process of developing conclusions and generalizations from specific observations".

- It moves from the specific to the general.
- Specific situations are observed and then combined into a larger, more general statement that can be tested through research.



*For example,*

*The obstetrics nurse described observed hundreds of individual clients in labor over many years. From these observations, the nurse was able to propose a general theory about women who are in labor that could then be tested through formal research.*

- Reasoning, in general, is limited because its validity depends on the accuracy of the information used to start with.

### **7. Disciplined research (Scientific research):**

- Research conducted within a disciplined format is the most sophisticated method of acquiring knowledge.
- Nursing research creates systems of problem solving that tend to be more reliable than other sources of knowledge.

## **Types of scientific research:**

Before studying research in depth, you have to know the variety of choices of techniques, and difference among the research types.

### **1. Quantitative Vs Qualitative research:**

#### **a. Quantitative research:**

- It seeks to convert observations to numbers, (i.e., to quantify observations about human behavior).
- The testing of hypotheses based on a sample of observations, and a statistical analysis of the data.
- Quantitative researchers attempt to describe relationships among variables mathematically and to apply some form of numerical analysis to the examined relationship.
- *Types of questions asked:* often describe variables, examine relationships among variables, and determine cause-and-effect interactions between variables.



*Examples of quantitative research questions:*

- 1. What support factors in the work environment are most important in determining the level of job satisfaction experienced by nurses in critical care units?*
- 2. What is the relationship between use and need of nursing services in the rural areas?*

**b. Qualitative research:**

- It emphasizes verbal descriptions and explanations of human behavior, (i.e., careful and detailed descriptions of life experiences in an attempt to understand how the participants experience and explain their own world and give meaning to it).
- The tools for gaining information include: participant observation, in-depth interviews, or an in-depth analysis of a single case.

*Examples of qualitative research questions:*

- 1. What is the meaning of the experience of participating in public health education sessions for mental health clients?*
- 2. How do nurses handle patients who refuse to follow instructions?*
- 3. What is it like to be diagnosed with a terminal illness?*

**2. Descriptive Vs Explanatory Vs Predictive research:**

**a. Descriptive research (Exploratory research):**

- It emphasizes the accurate description of some aspect of society.
- A researcher may wish to assess specific characteristics of individuals, groups, situations, or events by summarizing the commonalities found in discrete observations.

- The descriptive research is directed toward studying "*what*" and *how many* of this "*what*". Thus, it is directed toward answering questions such as, "**WHAT IS THIS?**".

***Example of descriptive research question:***

*To explore the differences between female students who initiate smoking in their teen years and female students who do not smoke, a researcher would want to describe the characteristics of the two sets of the students.*

- *Are rural students more likely to be nonsmokers in their teen years?*
- *Are young women from higher socioeconomic levels more likely to initiate smoking during adolescence?*

**b. Explanatory research:**

- Its primary goal is to understand or to explain relationships.
- It uses ***correlations*** to study relationships between dimensions or characteristics of individuals, groups, situations, or events.
- Explanatory research explains (**HOW THE PARTS OF A PHENOMENON ARE RELATED TO EACH OTHER**).
- Explanatory research asks the "**WHY**" question.

***Example of explanatory research question:***

*"Why do female students from higher socioeconomic levels are more likely to start smoking during teen years than those of lower socioeconomic levels?" Here there are two involved questions:*

1. *What is the relationship between socioeconomic background and initiation of smoking behavior?*
2. *If there is a relationship, why does it exist?*

### **c. Predictive research:**

- This type of research moves beyond explanation to the prediction of precise relationships between dimensions or characteristics of a phenomenon or differences between groups.
- The area of health promotion provides a rich source for predictive studies on the impact of such intervention on health outcomes in various populations.

*Example of predictive research question:*

*What are the risk factors for postoperative pulmonary complications after total abdominal hysterectomy?*

*Thus, the aim of this study was to "identify risk factors that could predict postoperative pulmonary complications after total abdominal hysterectomy".*

### **3. Basic (pure) Vs applied research:**

#### **a. Basic research:**

- This type of research focuses on understanding phenomena of interest.
- It is conducted to accumulate information, extending the base of knowledge in a discipline to improve understanding, or to formulate a theory.
- Basic research is appropriate for discovering general principles of human behavior and biophysiology processes.

*Example of a basic research concern:*

*The nurse scientist who accumulates information in order to further our understanding of relationship between socioeconomic status and the intention to follow a healthy diet is engaging in a basic research.*

## **b. Applied research:**

- This type of research focuses on finding an immediate solution to an existing problem.
- Applied research is designed to indicate how the principles of human behavior can be used to solve problems in nursing practice.

*Example of an applied research:*

*The nurse researcher may want to increase attendance at weekly prenatal classes for young- aged women, and thus would test the effectiveness of an intervention such as attending to the hospital at labor signs.*

## **Characteristics of a scientific research:**

The good scientific research should have the following characteristics:

1. Should include a problem that need a solution or a question that need an answer.
2. Should achieve a general objective rather than a personal objective.
3. It should follow the scientific approach that characterized by order and control.
4. It should add new information through:
  - a. New facts that was not known before.
  - b. Validates results of previous research.
  - c. Tests theories.
  - d. Explains findings of a previous research.
  - e. Find out new relationships among present phenomena.
5. Research results should be liable to:
  - a. **Testing** \_\_\_\_\_ when another researcher choose the same problem and follows the same steps, he/she probably gets the same results.
  - b. **Generalization** \_\_\_\_\_ that is the results could be generalized from the study sample to the study population.

6. The research should be ethical (i.e., does not violate the rights of patients, profession, community, or the researcher him/her self).

**Limitations of the scientific research:**

1. It is inadequate for addressing moral or ethical questions (e.g., Should abortion be legal?).
2. It must contend with problems of measurement, thus, any phenomena must be translated to measurable items.
3. It typically focuses on a relatively small portion of the human experience (e.g., weight gain, depression) in a single study.

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